

After completing its review, DOE concluded that, although public perception regarding the proposed geologic repository and transportation of spent nuclear fuel and high-level radioactive waste could be measured, there is no valid method to translate these perceptions into quantifiable economic impacts. Researchers in the social sciences have not found a way to reliably forecast linkages between perceptions or attitudes reported in surveys and actual future behavior. Based on the current limitations in forecasting future behavior attributable to risk perception or stigma, there is a consensus among social scientists that a quantitative assessment of economic impacts from risk perception and stigma is impossible at this time. At best, only a *qualitative* assessment is possible about what broad outcomes seem most likely.

Qualitatively, in the absence of a large accident or a continuing series of smaller accidents, there is little reason to expect that negative perceptions about repository operations are likely to engender adverse effects (see Appendix N). Likewise, absent accidents, there is no reason to expect that risk perceptions would impact property values in areas beyond the transportation corridors. Some studies (DIRS 156055- UER 2001, all; DIRS 156003-Gawande and Jenkins-Smith 2001, all) report that, at least temporarily, a small relative decline in residential property values might result from the designation of transportation corridors in urban areas, even in the absence of accidents. Other transportation experiences (for example, transportation of *transuranic waste* to the Waste Isolation Pilot Plant) suggest that impacts on property values might be negligible or nonexistent.

Based on the general research to date on perceptions and future behavior, and research related specifically to a Yucca Mountain repository, other nuclear facilities, and transportation of spent nuclear fuel and high-level radioactive waste, DOE has concluded that:

- While in some instances risk perceptions could result in adverse impacts on portions of a local economy, there are no reliable methods whereby such impacts could be quantified with any degree of certainty.
- Much of the uncertainty is irreducible.
- Based on a qualitative analysis, adverse impacts from perceptions of risk would be unlikely or relatively small.

While stigmatization of southern Nevada can be envisioned under some scenarios, it is not inevitable or numerically predictable. Any such stigmatization would likely be an aftereffect of unpredictable future events, such as serious accidents, which may not occur. Consequently, DOE did not attempt to quantify any potential for impacts from risk perceptions or stigma in this EIS.

The studies and literature reviewed are referenced in a report included in Appendix N, *Are Fear and Stigmatization Likely, and How Do They Matter? Lessons from Research on the Likelihood of Adverse Socioeconomic Impacts from Public Perceptions of the Yucca Mountain Repository* by Dr. Robert O'Connor.

2.6 Preferred Alternative

DOE's preferred alternative is to proceed with the Proposed Action to construct, operate and monitor, and eventually close a geologic repository for the disposal of spent nuclear fuel and high-level radioactive waste at Yucca Mountain. The analyses in this EIS did not identify any potential environmental impacts that would be the basis for not proceeding with the Proposed Action. Further, DOE has identified mostly rail as its preferred mode of transportation, both nationally and in the State of Nevada.

DOE recognizes that implementation of the Proposed Action would require the completion of a number of actions. As part of this process, the Secretary of Energy is to:

- Undertake (and complete) site characterization activities at Yucca Mountain to provide information and data required to evaluate the site.
- Determine whether to recommend approval of the development of a geologic repository at Yucca Mountain to the President.

If the Secretary recommends the Yucca Mountain site to the President, the NWPAs requires that a comprehensive statement of the basis for the recommendation, including this Final EIS, accompany the recommendation. DOE has prepared this Final EIS so the Secretary can consider it, including the public input on the Draft EIS and on the Supplement to the Draft EIS and other information described below, in making a determination on whether to recommend the site to the President. The NWPAs also requires DOE to hold hearings to provide the public in the vicinity of Yucca Mountain with opportunities to comment on the Secretary's possible recommendation of the Yucca Mountain site to the President. If, after completing the hearings and site characterization activities, the Secretary made a determination to recommend that the President approve the site, the Secretary would notify the Governor and Legislature of the State of Nevada accordingly. No sooner than 30 days after the notification, the Secretary would submit the recommendation to the President to approve the site for development of a repository.

If, after a recommendation by the Secretary, the President considered the site qualified for application to the Nuclear Regulatory Commission for a construction authorization, the President would submit a recommendation of the site to Congress. The Governor or Legislature of Nevada may object to the site by submitting a notice of disapproval to Congress within 60 days of the President's action. If neither the Governor nor the Legislature submitted such a notice within the 60-day period, the site designation would become effective without further action by the President or Congress. If, however, the Governor or the Legislature did submit such a notice, the site would be disapproved unless, during the first 90 days of continuous session of Congress after the notice of disapproval, Congress passed a joint resolution of repository siting approval and the President signed it into law.

In determining whether to recommend the Yucca Mountain site to the President, the Secretary would consider not only the potential environmental impacts identified in this EIS, but other information designated in Section 114 of the NWPAs. These include, for example, a description of the proposed repository, preliminary engineering specifications for the facility, a description of the proposed waste form, an explanation of the relationship between the proposed waste form or packaging and geologic medium of the site, a discussion of the site characterization data that relates to the safety of the site, preliminary comments of the Nuclear Regulatory Commission concerning the sufficiency of information for inclusion in any Departmental license application, and the views and comments of the Governor and Legislature of any State or the governing body of any affected Native American tribe.

As part of the Proposed Action, which DOE has identified as its preferred alternative, the EIS analyzes the potential impacts of transporting spent nuclear fuel and high-level radioactive waste to the Yucca Mountain site from 77 sites across the United States. This analysis includes information on such matters as the comparative impacts of truck and rail transportation nationally and in Nevada, as well as impacts in Nevada of alternative intermodal (rail-to-truck) transfer stations associated routes for heavy-haul trucks and alternative corridors for a branch rail line. The analysis did not identify any potential environmental impacts that would be a basis for not transporting spent nuclear fuel and high-level radioactive waste to the Yucca Mountain site.

DOE believes that the EIS provides the environmental impact information necessary to make certain broad transportation-related decisions, namely the choice of a national mode of transportation outside

Nevada (mostly rail or mostly legal-weight truck), the choice among alternative transportation modes in Nevada (mostly rail, mostly legal-weight truck, or heavy-haul truck with use of an associated intermodal transfer station), and the choice among alternative rail corridors or heavy-haul truck routes with use of an associated intermodal transfer station in Nevada.

DOE has identified mostly rail as its preferred mode of transportation, both nationally and in Nevada. The environmental impacts for mostly rail are expected to be less overall than the impacts for mostly truck. For the mostly rail scenario, 9,600 rail and 1,100 truck shipments are expected for shipping 70,000 MTHM and, for the mostly truck scenario, 53,000 truck and 300 rail shipments are expected. The reduced number of shipments to move 70,000 MTHM and corresponding expected reduction in environmental impacts are the basis for preferring the mostly rail scenario.

NONPREFERRED ALTERNATIVES

DOE has identified the Caliente-Chalk Mountain rail corridor and heavy-haul truck route as “nonpreferred alternatives.” The U.S. Air Force has stated that it knows of no route across the Nellis Air Force Range (now known as the Nevada Test and Training Range) that would avoid militarily sensitive areas and not affect the heavy volume of testing and training that occurs daily. Therefore, the Air Force believes that such a route would be inconsistent with the national security uses of the Range.

At this time, DOE has not identified a preference for a specific rail corridor in Nevada. If the Yucca Mountain site was approved, DOE would identify such a preference in consultation with affected stakeholders, particularly the State of Nevada. In that case, DOE would announce its preferred corridor in Nevada in a *Federal Register* notice. Following the *Federal Register* notice, DOE would publish its decision to select a corridor in a Record of Decision no sooner than 30 days after the announcement of a preference. However, follow-on implementing decisions, such as selection of a specific rail alignment in a corridor, would require additional field surveys, state and local government consultations, Native American tribal consultations, environmental and engineering analyses, and National Environmental Policy Act reviews.

REFERENCES

Note: In an effort to ensure consistency among Yucca Mountain Project documents, DOE has altered the format of the references and some of the citations in the text in this Final EIS from those in the Draft EIS. The following list contains notes where applicable for references cited differently in the Draft EIS.

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| 154554 BSC 2001 | BSC (Bechtel SAIC Company) 2001. <i>Lower-Temperature Subsurface Layout and Ventilation Concepts</i> . ANL-WER-MD-000002 REV 00. Las Vegas, Nevada: Bechtel SAIC Company. ACC: MOL.20010718.0225. |
| 104795 CRWMS M&O 1995 | CRWMS M&O (Civilian Radioactive Waste Management System Management & Operating Contractor) 1995. <i>Nevada Potential Repository Preliminary Transportation Strategy Study 1</i> . B00000000-01717-4600-00023 REV 01. Las Vegas, Nevada: CRWMS M&O. ACC: MOL.19960729.0195. In the Draft EIS, this reference was cited as TRW 1995a in Chapter 12. |